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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,474	12/23/2003	Masahiko Matsukawa	21581-00312-US	8031
30678 7590 02/21/2008 CONNOLLY BOVE LODGE & HUTZ LLP 1875 EYE STREET, N.W. SUITE 1100 WASHINGTON, DC 20036				
EXAMINER				
ZHENG, LOIS L				
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1793				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/743,474

**Applicant(s)**

MATSUKAWA ET AL.

**Examiner**

LOIS ZHENG

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 4-5 and 7-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-850)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date 10/11/07, 11/26/07, 12/14/07

## **DETAILED ACTION**

### ***Status of Claims***

1. Claim 1 is amended in view of applicant's claim amendments filed 26 November 2007. Claims 4-5 and 7-12 remain withdrawn from consideration.
2. Newly submitted claims 13-25, filed 26 November 2007, are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

The originally filed claims 1-3 and 6 and the newly submitted claims 13-25 are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the process as claimed can be practiced with another materially different product such as a phosphate or chromium containing conversion coating agent.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 13-25 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Status of Previous Rejections***

3. The rejection of claims 1-3 and 6 under 35 U.S.C. 103(a) as being unpatentable over Heimann et al. US 2003/0209290 A1(Heimann) in view of Affinito US 6,203,854 B1(Affinito) is withdrawn in view of applicant's claim amendments filed 26 November 2007.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dolan US 5,449,414(Dolan) in view of Affinito US 6,203,854 B1(Affinito).

Dolan teaches a substantially phosphate free(claim 1) conversion coating composition comprising 5-500mg/m<sup>2</sup> of complex fluoride of Ti, Zr, Hf and Si, and the mixture thereof(abstract, col. 4 line 66 – col. 5 line 25) and cation elements selected from Co, Mg, Mn, Zn, Zr, Fe, Al and/or Cu, wherein the ratio of the cation elements and the complex fluoride is at least 1:3(col. 3 lines 21-29). Dolan further teaches that it's coating composition has a pH in the range of 0.5-5.0(abstract).

Regarding claims 1 and 2, the complex fluorides of Ti, Zr, and Hf as taught by Dolan meet the limitations of claimed at least one of Zr, Ti and Hf and the claimed fluorine. The cation elements as taught by Dolan read on the claimed component (A) to (D). In addition, Even though Dolan does not explicitly teach amount of each of the

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cation elements above, Dolan does teach that the ratio of cation elements and complex fluoride is at least 1:3. Since the complex fluoride of Dolan is in the amount of 5 to 500mg/m<sup>2</sup>, the cation elements of Dolan should be in the amount of at least 1.67 mg/m<sup>2</sup>. Based on this dry coating amount, the examiner takes a position that the corresponding concentration of the cation elements in the coating solution of Dolan would have inherently overlapped the claimed concentration ranges for components (A)-(D). In addition, the pH of the coating composition of Dolan overlaps the claimed pH of 1.5 to 6.5. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed component concentration ranges and the claimed pH range from the disclosed ranges of Dolan would have been obvious to one skilled in the art since Dolan teaches the same utilities in its disclosed component concentration and pH ranges.

However, Dolan does not teach the claimed silane coupling agent.

Affinito teaches an anticorrosion metal surface treatment solution comprising complex fluorides such as titanium fluoride, fluorotitanic acid, fluoro-zirconic acid, fluorohafnic acid and mixture thereof, used in combination with an aminosilane in an amount of about 0.2wt% to about 3wt%(abstract, col. 3 lines 41-44 and 63-66).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated about 0.2wt% to about 3wt% of aminosilane as taught by Affinito into the coating solution of Dolan since Affinito teaches that solutions comprising both an aminosilane and a fluorine containing compound not only provide good corrosion protection, but also provide good polymer adhesion(col. 2 lines 55-58).

In addition, the amount of aminosilane as taught by Dolan in view of Affinito, which reads on the claimed silane coupling agent, overlap the claimed amount of silane coupling agent. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed silane coupling agent concentration range from the disclosed range of Dolan in view of Affinito would have been obvious to one skilled in the art since Dolan in view of Affinito teach the same utilities in their disclosed silane coupling agent concentration range.

6. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dolan US 5,449,414(Dolan) in view of Affinito US 6,203,854 B1(Affinito), and further in view of Ries et al. US 3,682,713(Ries).

The teachings of Dolan in view of Affinito are discussed in paragraph 5 above. However, Dolan in view of Affinito do not explicitly teach the claimed accelerator as recited in claims 3 and 6.

Ries teaches a substantially phosphate free coating composition comprising complex fluorides of Ti and/or Zr(col. 2 lines 23-33) and water soluble salts of Zn and or Co(col. 3 lines 12-20). The coating composition of Ries further contains 0.5-30g/l of accelerators such as nitrates, chlorates, bromates, hydrogen peroxide and nitro group-containing compounds(col. 2 line 62 – col. 3 line 11).

Regarding claims 3 and 6, it would have been obvious to one of ordinary skill in the art to have incorporated 0.5-30g/l of accelerators, such as nitrates, chlorates, bromates, hydrogen peroxide and nitro group-containing compounds, as taught by Ries

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into the coating solution of Dolan in view of Affinito in order to speed up the conversion coating process.

In addition, the accelerator concentration range as taught by Dolan in view of Affinito and Ries overlaps the claimed accelerator concentration range. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed accelerator concentration range from the disclosed accelerator concentration range of Dolan in view of Affinito and Ries would have been obvious to one skilled in the art since Dolan in view of Affinito and Ries teach the same utilities in their disclosed accelerator concentration range.

#### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1-3 and 6 filed 26 November 2007 have been considered but they are not persuasive.

Applicant argues that Dolan teaches that its composition is free from silica and silicates that do not contain at least four atoms of fluorine per atom of silicon. Based on this teaching, one of ordinary skill in the art would have precluded the addition of other components to the Dolan's composition. Therefore, the combination of Dolan and Affinito is made without motivation.

The examiner agrees that Dolan teaches that it is preferred that its coating composition is substantially free from many ingredients used in other similar compositions. Dolan further provided examples of such ingredients such as silica and silicates that do not contain at least four atoms of fluorine per atom of silicon. However, Dolan does not teach the exclusion of using silane coupling agent in its coating solution.

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Silane(i.e.  $\text{SiH}_4$ ) is very different chemical compound than silica and silicates that do not contain at least four atoms of fluorine per atom of silicon. One of ordinary skill in the art would not have derived the exclusion of silane in the coating composition of Dolan from Dolan's teaching of preferably not using silica and silicates that do not contain at least four atoms of fluorine per atom of silicon.

In addition, the coating solution of Dolan comprises complex fluoride of Ti, Zr and/or Hf and is phosphate free. The coating solution of Affinito also comprises complex fluoride of Ti, Zr and/or Hf and is also phosphate free. Affinito further teaches combining aminosilane and a fluorine containing compound not only provide good corrosion protection, but also provide good polymer adhesion(col. 2 lines 55-58). Therefore, one of ordinary skill in the art would have found it obvious to have incorporated the aminosilane as taught by Affinito into the coating composition of Dolan in order to improve corrosion protection and coating adhesion as taught by Affinito.

Therefore, the examiner does not find applicant's argument convincing and maintains that the combination of Dolan and Affinito is proper.

Applicant's further arguments regarding the Dolan in view of Affinito are not convincing since applicant has not substantiate these arguments with proper reasoning and explanation from the teachings of the prior art or the lack thereof.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.



Tada et al. US 6,514,357 B1 teach a conversion coating solution comprising the claimed fluoride ions, the claimed metal ions and the claimed silane coupling agent. However, the amount of Cu is 0.1-5wt%, which is higher than claimed.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/  
Supervisory Patent Examiner, Art  
Unit 1742

LLZ